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| 10/611,619 | 06/30/2003 | Zhong-Ning Cai | 42P17030 | 1417 |
| 8791 | 7590 | 10/18/2006 | EXAMINER | |
| BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030 | | | PATEL, KAUSHIKKUMAR M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2188 | |

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/611,619

Applicant(s)

CAI ET AL.

Examiner

Kaushikkumar Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 16, 18, 19, 21 and 23-31 is/are rejected.
- 7) ☒ Claim(s) 13, 15, 17 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to applicant's communication filed July 31, 2006 in response to PTO Office Action mailed March 28, 2006. The Applicant's remarks and amendments to the claims and/or the specification were considered with the results that follow.
2. In response to the last Office Action, claims 4, 9, 13, 17 and 31 have been amended. No claims have been cancelled. No claims have been added. As a result, claims 1-21, and 23-31 remain pending in this application.
3. Objections to claims 13 and 17 have been withdrawn due to amendment filed July 31, 2006.
4. Rejection of claims 4, 9 and 31 under 35 U.S.C. 112, second paragraph have been withdrawn due to amendments filed on July 31, 2006.
5. The affidavit filed on July 31, 2006 under 37 CFR 1.131 have been fully considered but is ineffective to overcome the Schultz (US 2004/0148470 A1) reference. Based on evidence provided (document titled, "CFB Second sector pre-fetch"), it appears that applicant is relying on A) Conception prior to effective date of reference, followed by Diligence until the US filing date or B) Reduction to practice back to January 19, 2003.

The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Schultz (US 2004/0148470 A1) reference. While conception is the mental part of the inventive act, it must be capable of proof, such as

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by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897).

Applicant has not discussed the evidence in the affidavit with required detail.

The affidavit or declaration and exhibits must clearly explain which facts or data applicant is relying on to show completion of his or her invention prior to the particular date. Vague and general statements in broad terms about what exhibits describe along with a general assertion that the exhibits describe a reduction to practice "amounts essentially to mere pleading, unsupported by proof or a showing of facts" and thus, does not satisfy the requirements of 37 CFR 1.131 (b). *In re Borkowski*, 505 F.2d 713, 184 USPQ 29 (CCPA 1974). Applicant must give a clear explanation of the exhibits pointing out exactly what facts are established and relied on by applicant. 505 F.2d at 718-19, 184 USPQ at 33. See also *In re Harry*, 333 F.2d 920, 142 USPQ 164 (CCPA 1964) (Affidavit "asserts that facts exist but does not tell what they are or when they occurred").

Hence the rejection of claims are maintained and reiterated below for applicant's convenience.

Response to Arguments

6. Applicant's arguments with respect to claims 1-21 and 22-31 have been considered but are not persuasive.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-12, 14, 16, 18-19, 21, 23-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Schulz (US 2004/0148470 A1).

As per claims 1 and 6, Schulz teaches a method comprising:

identifying a prefetch depth (see abstract, taught as dynamically changing prefetching of data from system memory inherently teaches identifying prefetch depth);

detecting a memory subsystem response level according to at least one bus transaction directed to a main memory (see abstract and paragraph [0043], taught as in response to read request (teaches bus transaction) dynamically adjusting prefetching of data bandwidth utilization of the memory);

prefetching data according to an adjusted prefetch depth (paragraph [0046], taught as increasing or decreasing number of prefetch cycles inherently teaches prefetching data according to adjusted prefetch depth);

adjusting the prefetch depth as changes in the memory subsystem response level are detected (paragraphs [0044] and [0046]).

As per claims 2 and 7, Schulz teaches checking of whether prefetching is enabled or not? Schultz also teaches a configuration storage to store configuration values such as number prefetch cycles and enablement of disablement, which inherently teaches querying to control register for prefetching enable/disablement and data structure to identify prefetch depth (paragraphs [0041] and [0057]).

As per claims 3 and 8, Schultz teaches configuration storage (e.g. look-up tables) for storing configuration values and enable/disablement values and use of such tables to (storage locations) dynamically vary prefetching. Thus, Schultz inherently teaches accessing table, defining respective depths with enabled bit and reading of prefetch depth from table entry (paragraph [0041], fig. 3, item 151).

As per claims 4 and 9, reading of the data line from memory is inherent feature of the processor after adjusting the prefetch depth.

As per claims 5 and 10, Schultz teaches continuously monitoring memory subsystem level using threshold values and adjusting prefetching from values stored in configuration storage according to changes in memory subsystem utilization values. Thus, Schultz inherently teaches identifying updates with valid bit (as Schultz also teaches enabling and disabling of prefetching) and reading of newly adjusted prefetch depth and prefetching according to updated prefetch depth (paragraphs [0043] and [0046]).

Claims 11-12, 21, 23, 26, 27 are also rejected under same rationales as applied to claims 1-10 above. As Schultz teaches an apparatus with logic (figs. 2 and 3) to dynamically vary prefetching depending on memory subsystem utilization level.

As per claims 14, 24 and 28, Schultz teaches tracking of memory subsystem requests (taught as tracking outstanding read/write request) and tracking average memory occupancy level (taught as tracking ratio of data packets to a bus cycle) (paragraphs [0043]-[0044]).

As per claim 16, Schultz teaches comparing of memory subsystem response level to activation and deactivation occupancy levels (paragraphs [0043] and [0046], taught as, if outstanding memory requests are compared against threshold values (activate/deactivate levels) and accordingly prefetching is enabled or disabled or varied (taught in paragraph [0046])).

As per claims 19, 25 and 29, Schultz teaches tracking memory latency according to memory subsystem requests (paragraph [0045]).

As per claim 18, Schultz teaches an in order queue as the number of outstanding memory subsystem requests (paragraph [0043]).

As per claim 30, Schultz teaches an input/output controller (fig. 1, item 60).

Claim 31 is also rejected under same rationales as applied to claims 11, 14 and 16.

Allowable Subject Matter

9. Claims 13, 15, 17, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



kmp

Kaushikkumar Patel
Examiner
Art Unit 2188


7/15/06
MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER